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Leibniz and *minutiae*

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Noi siamo gente avvezza
alle piccole cose,
umili e silenziose.
(Puccini, *Madama Butterfly*, first act)

Indeed there are passages in Leibniz's oeuvre, both published and unpublished, where he speaks of small things — things that are minute in the sense of tiny and difficult to observe — as mere trifles: f.i. he laments many a time that old-school minor logicians often present applications of their methods only to *minutias*, and thus flatter themselves on trivial results.

Such are *minutiae* if understood as objects that may be considered insignificant, at least in comparison to more dignified subjects of reflexion: in Leibniz's words, "minuta [...] ac sterilia".¹ While there are innumerable small things the knowledge of which can be separately pursued with some usefulness, all this will remain meaningless at large, in the absence of a *Scientia generalis*: "et licet infinitae rerum minutiae utcunque utiles aliquo modo et certorum hominum indagationi transcribendae, seponi possint a caeteris, omnino tamen ad sapientiam opus est *Scientiae generalis*".²

While it is true that, in the meantime, particular knowledge of minute things may be of great use in politics, economics, warfare, and medicine ("Interdum enim quae minuta videri possent, in re politica atque oeconomica, in re militari, in Medicina maximae utilitatis fuere"³), in the end, one would say, the moral of these passages is rather the old *de minimis non curat praetor*.

Yet, be they the *magnarum rerum tenuis notitia* that, at the beginning of the *Protogaea*, is said to be precious;⁴ or the infinite minimal differences between possible individuals and worlds, or the small perceptions that together form the murmur of waves and the roar of waterfalls; or the minute circumstances of which the inventories would be a most serviceable complement to the *scientia generalis* for use in politics, economics and medicine, it must be said that indeed *de minimis multum curat Leibnitius*.

1 A VI 4, 459.

2 *Paraenesis de scientia generali*, 1688; A VI 4, 979–80.

3 A VI 4, 138.

4 *Protogaea*, ed. by C.L. Scheid, Göttingen 1749, p. 12: "Magnarum rerum etiam tenuis notitia in pretio habetur. Itaque ab antiquissimo nostri tractus statu orsuro dicendum est aliquid *de prima facie terrarum, et soli natura contentisque*" ("Even a slight notion of great things is of value. Therefore, those who would trace our region back to its beginnings must also say something about the original appearance of the earth, and about the nature of the soil and what it contains", *Protogaea*, ed. by C. Cohen/A. Wakefield, Chicago/London 2008, p. 3).

Erudition and epistemology

As a matter of course, it is not Leibniz who will despise erudition. If Seneca had written: “Nam etiam quod discere supervacaneum est, prodest cognoscere”,⁵ Leibniz would surely like to learn absolutely everything possible, and he is evidently proud of the immensity of his erudition, of his command of historical notions, of his partiality to those ‘small books’ containing practical and particular knowledge, of his interest for the secrets and the techniques of artisans and engineers, and maybe of his vast collection of recipes for pomades and herbal remedies.

He openly states his appreciation of punctilious historical knowledge in a letter to Placcius of 1690:

“Gaudeo quod Cryptonymorum detegendorum consilium urges, insigni haud dubie rei litterariae accessione; cujus pars non contemnenda consistit in notitia scriptorum. Scio esse qui omnem illam curiositatem inutilem judicent, quasi rerum non scriptorum, habenda sit ratio. Sed hi non vident in tanta multitudine rerum cognoscendarum, ingentis compendii esse, aliorum frui laboribus. Itaque necessaria librorum notitia est, libros autem plerumque commendat autor, facileque intelligitur, quod ab insigni viro scriptum est utiliter legi”.⁶

This attitude is also particularly apparent in epistemology — a domain which admittedly has somewhat more philosophical import — as it is shown by Leibniz’s comparison of analysis’ attention to particulars, with the craftiness of miniaturists. It is found in the famous passage where Leibniz says that analytical minds are rather myopic, whereas combinatory minds seem more presbyopic:

“Caput praemittendum de differentia Methodi Analyticae et Combinatoriae, et de differentia ingenii Analytici et ingenii combinatorii. In analysi magis opus attentione ad pauca, sed valde acri, in combinatoria opus respectu ad multa simul, itaque simile est discrimen atque inter *pictores rerum minutissimarum* et statuarios. Analytici magis Myopes; Combinatorii magis similes presbitis”.⁷

He clearly has in mind the way an uncorrected eye will have either to get very near to its object, or to look from a distance, in reason of those very defects. It may be remarked that the condition attributed to analysis was known to him by experience, because of his own shortsightedness, that made him constantly be analytic at short distance, and fail to recognize people in the street; whilst, of combinatoric presbyopia, he had at the time only third-person knowledge. He would eventually suffer from both and quit the use of this simile.

Minutiae minutissimae

As I said, in the same passage he also compares analysis and combinatorics respectively

5 Seneca, *De benef.* VI, 1 (“there is some advantage in discovering even what is not worth learning”, *Moral Essays*, ed. by J.W. Basore, Cambridge, MA, Harvard U.P., 1970-1979, vol. 3, p. 365).

6 A II, 2, 342. “I rejoice when you call for collaboration in detecting cryptonims: this would surely be an enhancement of literary studies, a part of which, and one not to be despised, consists in knowledge of the authors. I know that some deem useless such inquiries, as if we should have regard to things and not to writers. But they do not perceive that in such vastness of things to be known, to be able to use the work of others is a great help. So it is necessary to have some notion of books, and many books stand out due to their author, since it is useful to read what is written by illustrious men”. Collaboration had been asked by Placcius in his *Invitatio amica ad Antonium Magliabecchi, aliosque illustres [...] super symbolis promissis partim et destinatis ad anonymos et pseudonymos detectos et detegendos*, Hamburg 1689.

7 A VI 4, 425–26 (my emphasis). “I must premise a chapter concerning the difference between the analytical and the combinatory method, and the difference between analytical and combinatory minds. In analysis it is suitable to pay attention to fewer things, but with more precision, whereas combinatorics considers many things together; thus the difference between them is similar to that between miniature painting and sculpture. Analytical mind are rather short-sighted, while combinatory ones are rather presbyopic”.

to miniature and sculpture. Now Leibniz applies to God different metaphors: he characterizes him chiefly as an architect, as a gardener, as a geometer, sometimes as a lute player, once as a novel writer, but never as a miniaturist. Yet, in particular, it is in the machines of nature that only the most perfect being can have created that, truly and essentially, no *minutiae* are negligible:

“L’organisme est essentiel à la matière, mais à la matière arrangée par une sagesse souveraine. Et c’est pour cela aussi que je définis l’Organisme, ou la Machine naturelle, que c’est une machine dont chaque partie est machine, et par conséquent que la subtilité de son artifice va à l’infini, *rien n’étant assez petit pour être négligé*, au lieu que les parties de nos machines artificielles ne sont point des machines. C’est là la différence de la Nature et de l’Art, que nos modernes n’avaient pas assez considérée”.⁸

This clearly differentiates natural *minutiae* from infinitesimals, which, as it is well known, are negligible — by institution, in a way, if not by nature. This brings me to the first main question I should like to consider in this paper. Is there a dimension that can be referred to, at least locally to a certain domain, as the standard, so to say, for *minutiae*?

In Leibniz’s examples of *petites perceptions*, f.i., we mostly encounter accessible entities of finite, determinate dimensions: we are not able to distinguish the noise of each single wave, but the wave has perceptible existence; we are not able to tell blue grains apart from yellow grains in a green powdery mixture,⁹ but it would in principle be possible to separate them patiently with ordinary means, albeit with extraordinary patience.

When we consider the ambient noise in a room, there is no perception of the movements of microscopic beings that seems to directly account for our overall apperception of that noise: even fluttering eyelashes, although they may move the heart of some — allow me some ciliary association — supercilious character of a romantic novel, would not look like the typical “small” contribution to ordinary perceptions. Much less the noise of the cilia of unicellular beings seems to be envisaged by Leibniz, although they surely are not, in terms of natural philosophy, “assez petit[es] pour être négligé[es]”.

In fact, many years before, Leibniz had written in the *De affectibus* [D], that an overall reduction to the confused perception of things too small in comparison with ordinary perceptions characterizes all states of stupor:

“Cum res ea multa nobis confuse exhibet, id est minuta nimis quam ut cum caeteris rebus quas cogitamus

8 To Lady Masham, 1704; GP 3, 356 (my emphasis). “The organism is essential to matter, but only to matter arranged by a sovereign wisdom. That is why I define the Organism, or the Natural Machine, as a machine each part of which is a machine, and where, as a consequence, the subtlety of the artifice goes ad infinitum, since nothing is so small that it be neglected; whereas the parts of our artificial machines are not machines. This is the difference between Nature and Art, that has been overlooked by our Moderns”.

9 See the *Meditationes de cognitione, veritate, et ideis* of 1684: “Caeterum cum colores aut odores percipimus, utique nullam aliam habemus quam figurarum, et motuum perceptionem, sed tam multiplicium et exiguum, ut mens nostra singulis distincte considerandis in hoc praesenti suo statu non sufficiat, et proinde non animadvertat perceptionem suam ex solis figurarum et motuum minutissimorum perceptionibus compositam esse, quemadmodum confusis flavi et caerulei pulvisculis viridem colorem percipiendo, nil nisi flavum et caeruleum *minutissime* mixta sentimus, licet non animadvertentes et potius novum aliquod ens nobis fingentes” (A VI 4, 592; my emphasis). “Furthermore, when we perceive colors or smells, we certainly have no perception other than that of shapes and of motions, though so very numerous and so very small that our mind cannot distinctly consider each individual one in this, its present state, and thus does not notice that its perception is composed of perceptions of minute shapes and motions alone, just as when we perceive the color green in a mixture of yellow and blue powder, we sense only yellow and blue finely mixed, even though we do not notice this, but rather fashion some new thing for ourselves” (Ariew/Garber, 27).

comparari possint, attoniti videmur; et talis est status in ebrietate, in morbo, imo ut credibile est, etiam in morte”.¹⁰

Such problems of scale can easily be extended: waves, drops, vibrations of parts that produce elasticity, and imperceptible movements that produce the “artificial” appearance of solidity in perception, might well all be bunched together under the viewpoint of universal monadic perception—but also not, if we consider the domain of natural discourse and science.

It can thus be surmised that there really is a level of “impending” *minutiae* — and I use this expression only provisionally, being in lack of a better connotation — that directly and strongly count for us in a way that sub-minimal notions of our own pancreas, or of living creatures on far-away worlds, do not. Even Leibniz’s own attempt at a “twin-earth argument” in the *New Essays* seems to confirm it:

“[I]l se peut que dans un autre lieu de l’univers ou dans un autre temps, il se trouve un globe qui ne diffère point sensiblement de ce globe de la terre où nous habitons, et que chacun des hommes qui l’habitent, ne diffère point sensiblement de chacun de nous qui luy repond. [...] Au reste parlant de ce qui se peut naturellement, les deux globes semblables et les deux âmes semblables des deux globes ne le demeureroient que pour un temps. Car puisqu’il y a une diversité individuelle, il faut que cette différence consiste au moins dans les constitutions insensibles, qui se doivent développer dans la suite des temps”.¹¹

Platyhelminthes and drops of wax

I shall conclude this paper discussing the importance of *minutiae* in the thought of Leibniz from the point of view of moral philosophy, the very domain where they can be deemed to be properly effectual. Even they might be the most important of all things. As Nietzsche would put it in the work he wrote in my home town just a few weeks before going insane, like most philosophers who come to live there are known to have done: “diese kleinen Dinge [...] sind über alle Begriffe hinaus wichtiger als Alles, was man bisher wichtig nahm”¹². We shall see that in at least two important ways, admittedly very different from what Nietzsche had in mind in this page of his, *minutiae* really play a crucial role in the ethical balance of Leibniz’s universe.

A very good example of such effectual *minutiae* is that famous single drop of wax that day after day, in the *New Essays*, counterbalances the weakness of the will, or the constant effect of the *petits aiguillons du desir* that the power of reason alone, and even of moral instinct, is not able to counter. The most fascinating example, in fact, of the practical measures that Leibniz’s anti-stoic moral reason can adopt, is that of the Jesuit general who was given to drinking heavily when he was a member of fashionable

10 A VI 4, 1425. “When something presents us with many confused things, that is, with things exceedingly small, such to be incomparable with the other things that we conceive of, we appear to be stupefied. And such is the one’s state in drunkenness, illness, and, plausibly, even in death”.

11 NE II, 27, §29; A VI 6, 245–46. “[I]n another region of the universe or at some other time there may be a sphere in no way sensibly different from this sphere of earth on which we live, and inhabited by men each of whom differs sensibly in no way from his counterpart among us. [...] I will add that if we are speaking of what can naturally occur, the two similar spheres and the two similar souls on them could remain similar only for a time. Since they would be numerically different, there would have to be a difference at least in their insensible constitutions, and the latter must unfold in the fullness of time” (Remnant/Bennett, *ad loc.*).

12 Friedrich Nietzsche, *Ecce homo. Eine Beschreibung*, in *Werke. Kritische Gesamtausgabe*, ed. by G. Colli/M. Montinari, VI/3, Berlin/New York 1969, p. 294. “These small things [...] are inconceivably more important than everything one has taken to be important so far” (*On the Genealogy of Morals and Ecce Homo*, ed. by W. Kaufmann/R.J. Hollingdale, New York 1967, p. 256).

society and, when he was considering withdrawing from the world, retrenched gradually to almost nothing, by each day letting a drop of wax fall into the cup which he was wont to empty:

“Un voyage entrepris tout exprès guérira un amant, une retraite nous tirera des compagnies qui entretiennent dans quelque mauvaise inclination. François de Borgia General des Jesuites qui a esté enfin canonisé, estant accoutumé à boire largement, lorsqu’il estoit homme du grand monde; se réduisit peu à peu au petit pied, lorsqu’il pensa à la retraite, en faisant tomber chaque jour une goutte de cire dans le bocal qu’il avoit accoutumé de vuidier”.¹³

The other example, that is also especially interesting for the theme of this Congress, is that of the simplest and microscopic living beings that, in the *Theodicy*, contribute to the positive balance of happiness even in this disgraced corner of the universe.

The overall line of argumentation of the *Theodicy* concerning the problem of evil, and of the balance that the creator must needs have held between virtue and vice, misery and happiness, in this world, is clearly summarized at §222:

“[...] ces volontés antecedentes ne font qu’une partie de toutes les volontés antecedentes de Dieu prises ensemble, dont le resultat fait la volonté consequente, ou que le decret de créer le meilleur: et c’est par ce decret que l’amour de la vertu et de la felicité des creatures raisonnables, qui est indefini de soy et va aussi loin qu’il se peut, reçoit quelques petites limitations, à cause de l’égard qu’il faut avoir au bien en general. C’est ainsi qu’il faut entendre que Dieu aime souverainement la vertu et hait souverainement le vice, et que néantmoins quelque vice doit être permis”.¹⁴

A lovely expression: *quelques petites limitations*. What shall we do of such small limitations? They are very apparent in this corner of the universe, and Leibniz is perfectly aware of this. A famous answer of his to this problem is the following: “je crois qu’effectivement, à le bien prendre, il y a incomparablement plus de bien moral que de mal moral dans les Creatures raisonnables, dont nous ne connoissons qu’un tres petit nombre”.¹⁵

In the line of Huygens’ *Cosmotheoros*, of Fontenelle’s *Entretiens sur la pluralité des mondes*, and of an argument that was quasi a commonplace of Cartesian theodicies,¹⁶ Leibniz envisages here a universal moral balance that is squared by rational creatures of better morality living on faraway stars.

“Et quoyqu’il y ait apparemment en quelques endroits de l’univers des animaux raisonnables plus parfaits que l’homme, l’on peut dire que Dieu a eu raison de créer toute sorte d’especes, les unes plus parfaites que les autres. Il n’est peutêtre point impossible qu’il y ait quelque part une espece d’animaux fort ressemblans à l’homme, qui soyent plus parfaits que nous. Il se peut même que le genre humain parvienne avec le temps à une plus grande perfection, que celle que nous pouvons nous imaginer presentement. Ainsi les loix du mouvement n’empêchent point que l’homme ne soit plus parfait: mais la place que Dieu a assignée à l’homme dans l’espace et dans le temps, borne les perfections qu’il a pu recevoir”.¹⁷

13 NE II, 21, § 31; A VI 6, 187. “A lover will be cured by a voyage undertaken just for that purpose; a period of seclusion will stop us from keeping company with people who confirm some bad disposition in us. Francisco Borgia, the General of the Jesuits, who has at last been canonized, was given to drinking heavily when he was a member of fashionable society; when he was considering withdrawing from the world, he retrenched gradually to almost nothing, by each day letting a drop of wax fall into the flagon which he was accustomed to drinking dry” (Remnant/Bennett, *ad loc.*).

14 *Théod.*, §222; GP 6, 250–1. “These acts of antecedent will make up only a portion of all the antecedent will of God taken together, whose result forms the consequent will, or the decree to create the best. Through this decree it is that love for virtue and for the happiness of rational creatures, which is undefined in itself and goes as far as is possible, receives some slight limitations, on account of the heed that must be paid to good in general. Thus one must understand that God loves virtue supremely and hates vice supremely, and that nevertheless some vice is to be permitted” (Haggard, *ad loc.*).

15 *Théod.*, §219; GP 6, 249. “I think that in reality, properly speaking, there is incomparably more moral good than moral evil in rational creatures; and of these we have knowledge of but few” (Haggard, *ad loc.*).

16 See Sergio Landucci, *La teodicea nell’età cartesiana*, Napoli 1986.

17 *Théod.*, §341; GP 6, 317. “And although there be apparently in some places in the universe rational animals more

But this is the poorest of consolations. Should we be content with living in the worst possible place of the albeit best possible world?

There are two strategies deployed by Leibniz in this respect. One is the special mission that we have, to show to the universe that even from its moral bottom some good can eventually arise; and of course that is why we have been given a Saviour.

The other one entails again a reasoning about a balance, but not a moral one. It is the local balance of “good” (*du bien*). In the second section of the *Abregé de la controverse reduite à des Argumens en forme*, we read the following (Baylean) objection:

“S’il y a plus de mal que de bien dans les Creatures intelligentes, il y a plus de mal que de bien dans tout l’ouvrage de Dieu.

Or il y a plus de mal que de bien dans les creatures intelligentes.

Donc, il y a plus de mal quo de bien dans tout Pouvrage de Dieu”.¹⁸

If there is more evil than good in intelligent creatures, there is more evil than good in all God’s work. Now there *is* more evil than good in intelligent creatures, therefore there is more evil than good in all God’s work. Leibniz’s answer to this quite powerful objection is this:

“[...] à la Majeure, on ne l’accorde point, parce que cette pretendue consequence de la partie au tout, des creatures intelligentes à toutes les creatures, suppose tacitement et sans preuve, que les creatures destituées de raison ne peuvent point entrer en comparaison et en ligne de compte avec celles qui en ont. Mais pourquoy ne se pourroit il pas que le surplus du bien dans les creatures non intelligentes, qui remplissent le monde, recompensât et surpassât même incomparablement le surplus du mal dans les creatures raisonnables? Il est vray que le prix des dernieres est plus grand, mais en recompense les autres sont en plus grand nombre sans comparaison; et il se peut que la proportion du nombre et de la quantité surpasse celle du prix et de la qualité”.¹⁹

As for the major, Leibniz says, he does not admit it because “this supposed inference from the part to the whole, from intelligent creatures to all creatures, assumes tacitly and without proof that creatures devoid of reason cannot be compared or taken into account with those that have reason”. But, he adds,

why might not the surplus of good in the non-intelligent creatures that fill the world compensate for and even exceed incomparably the surplus of evil in rational creatures? It is true that the value of the latter is greater; but by way of compensation the others are incomparably greater in number; and it may be that the proportion of number and quantity surpasses that of value and quality.²⁰

To be so innumerable, indeed, the unreasonable creatures *must* comprehend *legions* of significantly smaller beings; but let us not resort to the evocation of the Lord of the Flies, since it is quite clear that, when Leibniz thinks of innumerable living creatures, he has in mind his ponds full of fishes, each part of which is like a minute pond with fishes, and so on *ad imminutissimum*.

Conclusion

This fascinating and, at the same time, disturbing theme—that the well being of monads is assured by the overall happiness of platyhelminthes—would deserve to be studied more in deep, and it may deserve to be mentioned that the inherent happiness of

perfect than man, one may say that God was right to create every kind of species, some more perfect than others. It is perhaps not impossible that there be somewhere a species of animals much resembling man and more perfect than we are. It may be even that the human race will attain in time to a greater perfection than that which we can now envisage. Thus the laws of motions do not prevent man from being more perfect: but the place God has assigned to man in space and in time limits the perfections he was able to receive” (Haggard, *ad loc.*).

18 GP 6, 378. See Haggard, *ad loc.*, for the translation.

19 Ibidem.

20 Ibidem.

unreasonable creatures has conspicuously been deemed by Alexander von Humboldt a “seliger Gedanke der Leibnizschen Philosophie”²¹, that is to say, a ‘blissful notion’ of Leibnizian philosophy.

But what we have read both from the *Theodicy* and from the other various Leibnizian sources that have been extracted here, can suffice to our purpose: it seems to me that, in the end, we are positively allowed to say that suitably-sized *minutiae* play an irrenounceable role in Leibniz’s ethics and in making real, as the refrain of this Congress goes, our happiness as well as the happiness of the others — *felicitatem nostram alienamve*.

21 Alexander von Humboldt, Letter to his brother Wilhelm, Febr. 25 1789: “Eben komme ich von einem einsamen Spaziergange aus dem Tiergarten zurück [...] So ganz im Genuß der reinsten, unschuldigsten Freude, von Tausenden von Geschöpfen umringt, die sich (seliger Gedanke der Leibnizschen Philosophie!) ihres Daseins freuen, [...] Solche Betrachtungen, lieber Bruder, versetzen einen immer in eine süße Schwermut!” (*Gesammelte Werke*, Stuttgart 1807, vol. 12, p. 190).